

~~INTERNAL DRAFT~~ FINAL
CERCLA Storm Water Management Plan
Parcel C Buildings 253 and 211 Radiological Remediation
Hunters Point Naval Shipyard
San Francisco, California

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Prepared for:



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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
§	Section
BAT/BCT	Best Available Technology/Best Control Technology
bgs	below ground surface

BMPs	Best Management Practices
BRAC	Base Realignment and Closure
CASQA	California Stormwater Quality Association
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	chain of custody; contaminant of concern
CSMP	Construction Site Monitoring Program
CSO	Caretaker Site Office
CTO	contract task order
EPA	U.S. Environmental Protection Agency
ERRG	Engineering/Remediation Resources Group, Inc.
FSS	Final Status Survey
Gilbane	Gilbane Company Federal
HCl	hydrochloric acid
HDPE	high density polyethylene
HNO ₃	nitric acid
HPNS	Hunters Point Naval Shipyard
K factor	soil-erodibility factor
L	liter
LLMW	low-level mixed waste
LLRW	low-level radiological waste
LS factor	hillslope length and slope factor
MBAS	methylene blue active substance
MDL	method detection limit
mL	milliliter
NA	not applicable
NAL	numeric action level
Navy	United States Department of the Navy
NAVFAC SW	Naval Facilities Engineering Command Southwest
NAVSEA	Naval Sea Systems Command
NEL	Numeric Effluent Limitations
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NRDL	Naval Radiological Defense Laboratory
NTU	nephelometric turbidity unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PM	Project Manager
PMO	Program Management Office
QA/QC	quality assurance and quality control
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
RADMAC	Radiological Multiple Award Contract
RASO	NAVSEA Detachment Radiological Affairs Support Office
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act

REAP	Rain Event Action Plan
R factor	rainfall erosivity factor hillslope
RL	risk level
RMWMP	Radiological Materials and Waste Management Plan
ROC	radionuclide of concern
ROICC	Resident Officer in Charge of Construction
RSY	radiological screening yard
RUSLE	Revised Universal Soil Loss Equation
RWQCB	Regional Water Quality Control Board
SAP	sampling and analysis plan
SFO	San Francisco International Airport
Site	Parcel C, buildings 253 and 211, at Hunters Point Naval Shipyard, San Francisco, California
SSHP	Site-Specific Safety and Health Plan
SOW	scope of work
SVOC	semivolatile organic compound
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCRA	time-critical removal action
TMDL	Total Maximum Daily Load
TPH	total petroleum hydrocarbons
TPH-g	TPH, gasoline range
TPH-d	TPH, diesel range
TPH-mo	TPH, motor oil range
ug/L	micrograms per liter
VOA	volatile organic analysis
VOC	volatile organic compound
WBZ	water-bearing zone
WDID	Waste Discharge Identification Number
WP	Work Plan

Qualified SWPPP Developer (QSD)

Approval and Certification of the CERCLA Storm Water Management Plan

Project Name: *Parcel C Buildings 253 and 211 Radiological Remediation
at Hunters Point Naval Shipyard
San Francisco, California*

Project Number/ID *Contract #: N62473-17-D-0005
Task Order #: CTO-0001
Gilbane Federal Project #: J310000100*

“This CERCLA Storm Water Management Plan and Appendices were prepared under my direction to meet the applicable requirements of the California Construction General Permit (State Water Resources Control Board [SWRCB] Orders No. 2009-009-DWQ as amended by Order 2010-0014-DWQ). I certify that I am a Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer (QSD) in good standing as of the date signed below.”

QSD Signature

Cenk Ergin, P.E.

QSD Name

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September 2017

Date

00375

QSD Certificate Number

925-946-3260

Telephone Number

Amendment Log

Project Name: *Parcel C Building 253 and 211 Radiological Remediation
at Hunters Point Naval Shipyard
San Francisco, California*

Project Number/ID: *Contract #: N62473-17-D-0005
Task Order #: CTO-0001
Gilbane Federal Project #: J310000100*

Amendment Number	Date	Brief description of amendment (include section and page number)	Prepared and approved by
			Name: QSD#
			Name: QSD#
			Name: QSD#
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			Name: QSD#

Section 1 CERCLA SWMP Requirements

1.1 INTRODUCTION

This Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Storm Water Management Plan (SWMP), or CERCLA SWMP, presents the substantive measures that will be implemented to minimize sediment and other pollutants in stormwater runoff during the implementation of construction activities at Buildings 253 and 211 at Parcel C, Hunters Point Naval Shipyard (HPNS) in San Francisco, California (Site). The site location is shown on Figure 1.

This CERCLA SWMP has been prepared to specifically address the activities associated with the Radiological Multiple Award Contract (RADMAC II) under Contract Number N62473-17-D-0005 to the Naval Facilities Engineering Command Southwest (NAVFAC SW).

The project involves removal of sub-surface drain lines from beneath and within the vicinity of the buildings, survey and sampling of the soil removed from the drain line trenches and the trenches themselves, and remediation of various building components as identified in the Building 253 and 211 Radiological Characterization Reports (Tetra-Tech, 2017a and 2017b). Final Status Surveys (FSSs) shall be completed for all remediated areas, with the results compiled and documented in reports to support unrestricted free release.

The only disturbance outside of the building perimeter will be caused by removal of the existing underground storm water drain pipes and sanitary sewer pipes and backfilling within 15 feet of the building perimeters.

As the total disturbed area due to the remediation activities included in current scope of work (SOW) is less than an acre, this construction project is not covered by the National Pollutant Discharges Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities issued by the California State Water Resources Control Board (SWRCB) in 2012. Therefore, most of the requirements of the General Permit do not apply to this project. However, for the purpose of establishing a SWMP, Gilbane identified and addressed the applicable requirements of the General Permit, including Best Management Practices (BMPs) to be implemented for construction activities, BMPs to be implemented for erosion and sediment control, waste management and disposal spill responses, post-construction controls, site inspection and monitoring programs, responsible personnel, and training requirements.

This CERCLA SWMP was designed to address the following objectives:

- All pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and other activities associated with construction activity; are controlled.
- Where not otherwise required to be under a Regional Water Quality Control Board (RWQCB) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated.
- Site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction

activity to the Best Available Technology/Best Control Technology (BAT/BCT) standard.

- Stabilization BMPs, installed to reduce or eliminate pollutants after construction, are identified, implemented, and completed.

1.2 CERCLA SWP AVAILABILITY AND IMPLEMENTATION

This CERCLA SWMP will be available at the Site (in the Construction Office Trailer at HPNS) during working hours while construction and/or field activities by the contractor are occurring, and will be made available upon request by a Navy, state, or municipal inspector. When the original CERCLA SWMP is retained by a crew member in a construction vehicle and is not currently at the construction site, current copies of the BMPs, maps, and drawings will be left with the field crew and the original CERCLA SWMP will be made available via a request by radio or telephone. The CERCLA SWMP will be implemented concurrently with the start of ground-disturbing activities, under the supervision of the SWMP Implementer.

1.3 CERCLA SWMP AMENDMENTS

The CERCLA SWMP will be amended or revised when:

- There is a reduction or increase in total disturbed acreage.
- BMPs do not meet the objectives of reducing or eliminating pollutants in stormwater discharges.
- There is a change in construction or operations that may affect the discharge of pollutants to surface waters, groundwater, or a separate municipal storm sewer system.
- There is a change in the project duration that changes the project's risk level.
- Deemed necessary by the CERCLA SWMP developer or implementer.

The following items will be included in each amendment:

- The name, project title, and certification number of the individual who prepared the amendment.
- The name and project title of the individual who requested the amendment.
- The location(s) of the proposed change(s).
- The reason for the change(s).
- The original BMP(s), if any.
- The new BMP(s) proposed, as applicable.

Amendments will be logged at the front of the CERCLA SWMP. The CERCLA SWMP text will be revised, replaced, and/or hand-annotated as necessary to properly convey the amendment.

1.4 RETENTION OF RECORDS

Paper or electronic records of documents required by this CERCLA SWMP will be retained for a minimum of three years from the date generated or for the time frame required by Navy Contract N62473-17-D-0005, Contract Task Order (CTO)-0001, whichever is longer.

These records will be available at HPNS until construction is complete. Records assisting in the determination of compliance with the General Permit will be made available within a reasonable time, to the RWQCB, SWRCB, or U.S. Environmental Protection Agency (EPA) upon request. Requests by the RWQCB for retention of records for a period longer than 3 years will be accommodated.

1.5 NOTICE OF TERMINATION

As the Navy contractor, Gilbane Federal (Gilbane) will prepare a final site map and take photographs to verify that all CERCLA SWMP requirements have been met. The final site map and photographs will be submitted as part of the final report following completion of the project, and within 90 days of meeting all requirements for termination and final stabilization, including the following:

- The Site will not pose any greater sediment discharge risk than the Site did prior to construction activities.
- All construction-related equipment, materials, and any temporary BMPs no longer needed are removed from the Site.
- Post-construction stormwater management measures (if required) are installed.

Section 2 Project Information

2.1 PROJECT AND SITE DESCRIPTION

2.1.1 Site Location

In 1940, the Navy obtained ownership of HPNS for shipbuilding, repair, and maintenance activities. After World War II, activities at HPNS shifted to submarine maintenance and repair. HPNS was also the site of the Naval Radiological Defense Laboratory (NRDL). HPNS was deactivated in 1974 and remained relatively unused until 1976. Between 1976 and 1986, the Navy leased most of HPNS to Triple A Machine Shop, Inc., a private ship repair company. In 1987, the Navy resumed occupancy of HPNS (Engineering/Remediation Resources Group, Inc. [ERRG] and Shaw, 2011).

HPNS property was placed on the National Priorities List in 1989, pursuant to CERCLA as amended by the Superfund Amendments and Reauthorization Act, because past shipyard operations left hazardous substances on the site. In 1991, HPNS was designated for closure pursuant to the Defense Base Closure and Realignment Act of 1990. Closure at HPNS involves cleanup of site contamination to make the property available for nondefense use (ERRG and Shaw, 2011).

Buildings 253 and 211 are located in Parcel C. Composed of about 79 acres in the central portion of the shipyard (see Figure 1), Parcel C was formerly part of the industrial support area, and was used for shipping, ship repair, and office and commercial activities. Seventy buildings are located within the boundaries of Parcel C. Industrial support facilities for ship repair dominated the land use at Parcel C and included a foundry, a power plant, a sheet-metal shop, a paint shop, and various machine shops. The docks at Parcel C were formerly part of the industrial production area. Portions of Parcel C were also used by the NRDL.

2.1.2 Existing Site Topography

Parcel C encompasses approximately 79 acres. Most surface elevations in Parcel C are between 0 to 10 feet above mean sea level.

2.1.3 Existing Drainage & Storm Water

Parcel C is generally flat and hard surfaced, with asphalt durable cover and existing concrete slab on grades of previously demolished buildings. The storm water is managed through storm drains and asphalt-lined V-ditches installed throughout the area which drain to the Bay.

2.1.4 Climate

Moderately wet winters and dry summers characterize the Bay area, with yearly rainfall averaging 19.7421.5 inches per year, predominantly from December November to March per NOAA Technical Memorandum NWS WR-176 ([HYPERLINK "http://www.wrh.noaa.gov/mtr/sfd_sjc_climate/sfd/SFD_CLIMATE3.php"]). During rainy periods, mixing of air layers is high, resulting in lower pollution levels. Surface waters are either collected in subsurface storm drains or allowed to sheet flow into the Bay. Flood insurance rate maps published by the Federal Emergency Management Agency place HPNS above the 100-year floodplain.

Temperatures in the HPNS area are generally moderate, with average summer temperatures ranging from the low 50s to the high 70s Fahrenheit (°F), and average winter temperatures ranging from the low 40s to the low 60s °F. A large-scale temperature gradient exists within the Bay area as a result of differential heating between land and water surfaces. This causes summer daytime temperatures 15 to 20 miles inland to be approximately 35 °F higher than shoreline areas. This differential decreases to less than 10 °F at night, and reverses in the winter when the inland temperatures are sometimes 20 °F lower.

2.1.5 Ecology

Parcel C ecology is limited to those plant and animal species adapted to the industrial environment. More than 90 percent of Parcel C is covered by hard surfaces (e.g., pavements, exposed slabs) and former industrial buildings. With little open space for flora and fauna, Parcel C is considered to have insignificant habitat value, and poses an insignificant risk to terrestrial ecological receptors. No threatened or endangered species are known to inhabit Parcel C or its immediate vicinity.

2.1.6 Geology and Groundwater

The western portion of Parcel C comprises the original promontory, with native soil over shallow bedrock, while most of the parcel consists of flat lowlands. The lowlands were constructed by

placing borrowed fill material from various sources, including crushed serpentinite bedrock from the adjacent highland, construction debris, and waste materials (such as used sandblast materials). The serpentinite bedrock and serpentine bedrock-derived fill material consist of minerals that naturally contain asbestos and relatively high concentrations of arsenic, manganese, nickel, and other ubiquitous metals.

The hydrostratigraphic units present at Parcel C include the shallow A-aquifer, the aquitard zone, the B-aquifer, and a bedrock water-bearing zone. The bedrock water-bearing zone is designated as F-WBZ in this report. The top of the A-aquifer occurs at approximately 8 to 10 feet below ground surface (bgs) across most of Parcel C. Groundwater is not currently used for any purpose at Parcel C.

The general pattern of groundwater flow is radially away from the former Parcel A topographic high (west of Parcel C) and toward the shoreline. At Parcel C, the general direction of groundwater flow is to the east, where groundwater discharges into the Bay.

2.1.7 Project Description

The site activities included in the scope of work for this CTO include the following.

- Radiological survey and remediation/removal of sub-surface sewer and storm drain lines;
- Radiological survey and remediation/removal of vertical and suspended drain piping (such as bulkhead- and overhead-mounted drain piping) within the building interiors; and
- Remediation of contaminated areas identified in the building interiors.

The survey and remediation/removal of sub-surface sewer and storm drain lines will involve excavating soil and piping along the existing sanitary sewer and storm drain lines that may contain radioactive contaminants at levels above the established criteria, as outlined in the Internal Draft Work Plan (WP; Gilbane, 2018^{7a}).

Soil generated during the pipe removal trenching activities will be sampled and screened against the potential chemical contaminants and radiation to determine suitability for backfill. Radiological screening procedures will be performed for all peripheral soils within the excavated trench line beneath the concrete to one foot below the pipe.

Sanitary sewer and storm drain line removal may be required both within the building interiors and to approximately fifteen (15) feet outside the building's exterior footprint.

Following completion of excavation activities, FSSs of the trench survey units will be performed. The results from the FSS will be reviewed by the Base Realignment and Closure (BRAC) Program Management Office (PMO) and Naval Sea Systems Command (NAVSEA) Detachment Radiological Affairs Support Office (RASO) to determine whether further remediation is required or whether the trench survey unit may be backfilled.

Materials found to be clear of radiological and chemical contamination will be considered non-Installation Restoration (IR) site soil and be stockpiled for potential transport back to the origin of excavation for backfill and site restoration. Soil that is found to be unsuitable or contaminated will be placed into end-dumps for offsite stockpiling and disposal in compliance with the Radioactive Materials and Waste Management Plan, which is appended to the WP.

Excavated soil will be stockpiled on the Building 224 slab, which remains in place on grade after the demolition of the building and will be utilized as a radiological screening yard (RSY) pad for scanning the excavated soil. The storm drain and sanitary sewer pipes that are removed will be stockpiled between Buildings 253/211 and the Building 224 foundation. During excavation activities, waste soil may be transported by local haul trucks to additional designated stockpile areas (Figure 2).

Depending on accessibility of construction equipment and digging conditions, excavations will be performed by a combination of mechanical equipment (excavators, mini-excavators, and backhoes) and hand digging. All the existing sewer and storm drain pipes within 15 feet of the building perimeters will be excavated to approximately 1 foot below the bottom of the existing pipe.

~~Prior to leaving exclusion zones, the exterior of each truck will be decontaminated if necessary, and the load will be covered with a tarpaulin as described in Section 9.0 of the RAWP, and Section 4.5 of the Dust Control Plan (included with this SWP as Appendix D to the RAWP). Prior to leaving exclusion zones (as established in the Radioactive Materials and Waste Management Plan [RMWMP] attached as Appendix C to the RAWP), the exterior of each truck will be decontaminated if necessary, and the load will be covered with a tarpaulin, as described in the RAWP (Gilbane, 2017a).~~

The project consists of the following work elements:

- Utility locating.
- Preparatory activities and meetings.
- Environmental resources surveying.
- Saw-cutting asphalt/concrete pavement.
- Mobilization.
- Stormwater, sediment, and erosion control.
- Excavations along the existing sewer and storm drain lines.
- Radiological surveys and sampling.
- Backfill placement and compaction.
- Site restoration (asphalt repairs) to match the existing surface.
- Free release survey and decontamination of equipment.
- IR Program soil reuse sampling.
- Waste classification, storage, and disposal.
- Demobilization.

Detailed descriptions of the above activities are provided in the RAWP (Gilbane, 20187a), to which this CERCLA SWMP is an attachment.

2.1.8 Developed Condition

Post-construction surface drainage will be unchanged from the pre-construction surface drainage because there will be no change in the percentage of permeable and impermeable covers or in the existing surface topography.

2.2 STORMWATER RUN-ON FROM OFFSITE AREAS

During trench excavations, run-on will be adequately managed or diverted upstream of the trench locations, such that the risk of erosion by upslope stormwater is eliminated. Based on the several obstructions on north and west of building 253 and 211, the run on towards the excavated area is negligible and will be managed and diverted at upstream of the trench locations by utilizing the BMPs such as SE-8 Sand Bag Barriers as indicated on Figure 3. Therefore, any run off calculations were not deemed required by the QSD of the SWPPP.

2.3 CONSTRUCTION SCHEDULE

The construction activities resulting in disturbance of the soil are expected to take place between March 3, 2018, and June 15, 2018. The QSP or his representative will contact the Qualified SWPPP Developer (QSD) if the schedule changes during land disturbance activities associated with the project to address potential impacts to the CERCLA SWMP. The estimated schedule for planned work can be found in Appendix A.

2.4 POTENTIAL CONSTRUCTION ACTIVITY AND POLLUTANT SOURCES

Potential contamination at Parcel C is associated with metals, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) in soil; VOCs, PAHs, semivolatile organic compounds (SVOCs), and metals in groundwater; and radiologically impacted structures and soil. Sediment and soil in project site locations may contain some of these compounds. The total disturbed area is less than 1 acre, and storm runoff risk from the trench excavations and stockpiles will be eliminated by utilizing the proper BMPs listed in the SWMP. Calculation of risk determination was therefore not required for this project per the General Construction Permit (SWRCB, 2012).

Appendix B includes a list of construction activities and associated materials that are anticipated to be used on the site. These activities and associated materials will or could potentially contribute pollutants, other than sediment, to stormwater runoff.

The anticipated activities and associated pollutants were used in Section 3 to select the BMPs for the project. Locations of temporary BMPs are shown on Figures 2 and 3.

Sampling requirements for non-visible pollutants associated with construction activity for this project are discussed in Section 7.7.1. A chemical inventory of products used by on-site personnel will be retained on site at the construction trailer.

2.5 IDENTIFICATION OF NON-STORMWATER DISCHARGES

Non-stormwater discharges consist of discharges that do not originate from precipitation events. The General Permit provides allowances for specified non-stormwater discharges that do not cause erosion or carry other pollutants.

Non-stormwater discharges into storm drainage systems or waterways that are not authorized under the General Permit and listed in the CERCLA SWMP, or are not authorized under a separate NPDES permit, are prohibited.

Non-stormwater discharges that are authorized by the U.S. Department of the Navy (Navy) for this project site include the following:

- Water to control dust.
- Discharges from emergency fire-fighting activities.
- Waters used to wash vehicles and equipment, provided that there is no discharge of soaps, solvents, or detergents used for such purposes.

These authorized non-stormwater discharges will be minimized by implementing the stormwater and non-stormwater BMPs described in Section 3 of this CERCLA SWMP.

The activities or project activities at this Site that may result in unauthorized non-stormwater discharges include:

- Diesel and gasoline fuel used for mechanical equipment.
- Fluids in vehicles and equipment, including fuels, coolants, non-fuel oil-based fluids, and lubricating and hydraulic oils.
- Use of portable toilets for field personnel.
- Decontamination of field equipment.

Steps including the implementation of appropriate BMPs will be taken to ensure that unauthorized discharges are eliminated, controlled, disposed, or treated on site.

Discharges of construction materials and wastes, such as fuel or marking paint, resulting from dumping, spills, or direct contact with rainwater or stormwater runoff, also are prohibited.

2.6 REQUIRED SITE MAP INFORMATION

The site layout map for the work actions to be performed is shown on Figure 1.

The map will be updated accordingly as changes occur in the field. Figures 1, 2, and 3 show the project location, surface water boundaries, geographic features, construction areas, and site perimeter. Table 2.1 identifies the figure where required elements are illustrated.

Table 2.1 Required Map Information

Included on Figure Number (1)	Required Element
Figure 1	The project's surrounding area (vicinity map)
Figure 1	Site layout
Figure 3	Construction site boundaries
Figure 3	Areas of soil disturbance (temporary or permanent)

Table 2.1 Required Map Information

Included on Figure Number (1)	Required Element
Figure 3	Locations of runoff BMPs (as temporary BMPs)
Figure 3	Locations of erosion control BMPs (as temporary BMPs)
Figure 3	Locations of sediment control BMPs (as temporary BMPs)
Figure 2	Vehicle storage areas
Figure 2	Material storage areas (i.e., laydown area)
Figure 2	Fueling Locations

Notes: (1) Indicates figure on which that information is included (e.g., Vicinity Map, Site Map, Drainage Plans, etc.)

(2) Indicates the conditions only if there is a breach or malfunction of BMPs on site.

Section 3 Best Management Practices

3.1 SCHEDULE FOR BMP IMPLEMENTATION

In consideration of the objectives identified in Section 1.1, this CERCLA SWMP includes actions and practices to address the following.

- Identify potential pollution sources associated with stormwater, including soil-disturbing activities that increase the potential for erosion and transport of soil, discharges of polluting materials related to activities, and discharges of stored materials or wastes.
- Ensure that the potential impact of rainfall and surface water run-on from off site are properly assessed and managed.
- Identify, construct, and implement BMPs in accordance with the project activity time schedule and maintain the BMPs for prevention of the potential discharges identified above, using appropriate levels of technology, field practices, and monitoring.
- Develop a maintenance schedule for BMPs installed during field activities designed to reduce or eliminate pollutants after site characterization is completed (post-construction BMPs).
- Establish an inspection and monitoring plan and program to ensure that the BMP prevention and control measures remain effective throughout the period of field activities.
- Include a Stormwater Site Monitoring Program designed to acquire and evaluate information related to the relative effectiveness of this CERCLA SWMP.

To achieve these actions and practices, BMPs as identified in Table 3.1 will be implemented prior to initiation of land disturbance activities, and as appropriate for each drilling location.

Table 3.1 BMP Implementation Schedule

	BMP Fact Sheet Number, Title	Implementation	Duration
Erosion Control	EC-1, Scheduling	Start of Construction	Entirety of Project
	EC-9 Earth Dikes	During Trenching	Entirety of Project
Non-Stormwater	NS-1, Water Conservation Practices	Start of Construction	Entirety of Project
	NS-2 Dewatering Operation	Start of Construction	Entirety of Project
	NS-6 Illicit Connection- Illegal Discharge Connection	Start of Construction	Entirety of Project
	NS-8, Vehicle and Equipment Cleaning	Start of Construction	Entirety of Project
	NS-9, Vehicle and Equipment Fueling	Start of Construction	Entirety of Project
	NS-10, Vehicle/Equipment Maintenance	Start of Construction	Entirety of Project

Table 3.1 BMP Implementation Schedule

	BMP Fact Sheet Number, Title	Implementation	Duration
Sediment Control	SE-5, Fiber Rolls	At stockpiles	Entirety of Project
	SE-6, Gravel Bag Berm	At stockpiles	Entirety of Project
	SE-7, Street Sweeping	Start of Construction	Entirety of Project
	SE-8, Sand Bag Barrier	Start of Construction	Entirety of Project
	SE-10, Storm Drain Inlet Protection	Start of Construction	Entirety of Project
Tracking Control	TC-1, Stabilized Construction Entrance and Exit	Start of Construction	Entirety of Project
	TC-3, Entrance Outlet Tire Wash	Start of Construction	Entirety of Project
Wind Erosion	WE-1, Wind Erosion Control	Start of Construction	Entirety of Project
Temporary Materials Management	WM-01 Material Delivery and Storage	Start of Construction	Entirety of Project
	WM-02 Material Use	Start of Construction	Entirety of Project
	WM-03 Stockpile Management	Start of Construction	Entirety of Project
	WM-04 Spill Preservation and Control	Start of Construction	Entirety of Project
	WM-05 Solid Waste Management	Start of Construction	Entirety of Project
	WM-06 Hazardous Waste Management	Start of Construction	Entirety of Project
	WM-07 Contaminated Soil Management	Start of Construction	Entirety of Project
	WM-09 Sanitary-Septic Waste Management	Start of Construction	Entirety of Project
	WM-10 Liquid Waste Management	Start of Construction	Entirety of Project

3.2 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls are required to provide effective reduction or elimination of sediment-related pollutants in stormwater discharges and authorized non-stormwater discharges from the site. Applicable BMPs are identified in this section for erosion control, sediment control, tracking control, and wind erosion control.

The field work is designed to prevent the spread of soil contamination during excavation, accumulation, and transportation of waste soil. Soil will be directly loaded into trucks whenever

possible to minimize stockpiles. Excavations will be restored as soon as possible after backfilling so that the fill material will not be eroded from the excavation by wind or rain. BMPs such as sand bags or gravel bags will be implemented if heavy rain is predicted at backfilled trench excavations, to slow any stormwater flowing towards storm drain inlets.

3.2.1 Erosion Control

Erosion control, also referred to as soil stabilization, consists of source control measures designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion control BMPs protect the soil surface by covering and/or binding soil particles.

This project will implement the following practices to provide effective temporary and final erosion control during construction.

- Control the area of soil-disturbing operations such that the contractor is able to implement erosion control BMPs quickly and effectively.
- Stabilize non-active areas within 14 days of cessation of construction activities, or sooner if stipulated by local requirements.
- Control erosion in concentrated flow paths by applying sandbags, gravel bag berms, or equivalent methods.

Sufficient erosion control materials will be maintained on site to allow implementation in conformance with this CERCLA SWMP.

The following temporary erosion control BMP selection table (Table 3.2) indicates the BMPs that will be implemented to control erosion for the field activities. Fact Sheets for temporary erosion control BMPs are provided in Appendix C.

Table 3.2 Temporary Erosion Control BMPs

CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement ⁽¹⁾	BMP Used		If not used, state reason
			YES	NO	
EC-1	Scheduling	✓	✓		
EC-2	Preservation of Existing Vegetation	✓		✓	The project site is all hard surfaced with concrete or asphalt pavement.
EC-3	Hydraulic Mulch	✓ ⁽²⁾		✓	Same as above
EC-4	Hydroseed	✓ ⁽²⁾		✓	Same as above
EC-5	Soil Binders	✓ ⁽²⁾		✓	Same as above
EC-6	Straw Mulch	✓ ⁽²⁾		✓	Same as above
EC-7	Geotextiles and Mats	✓ ⁽²⁾		✓	Same as above
EC-8	Wood Mulching	✓ ⁽²⁾		✓	Same as above
EC-9	Earth Dike and Drainage Swales	✓	✓		
EC-10	Velocity Dissipation Devices			✓	Not Applicable to Construction Area conditions.
EC-11	Slope Drains			✓	Not Applicable to area of field activities
EC-12	Stream Bank Stabilization			✓	Not Applicable to area of field activities
EC-13	Polyacrylamide	✓		✓	Not Applicable to area of field activities
EC-14	Compost Blankets	✓ ⁽²⁾		✓	The project site is all hard surfaced with concrete or asphalt pavement.
EC-15	Soil Preparation-Roughening			✓	The project site is all hard surfaced with concrete or asphalt pavement.
EC-16	Non-Vegetated Stabilization	✓ ⁽²⁾		✓	The project site is all hard surfaced with concrete or asphalt pavement.
WE-1	Wind Erosion Control	✓	✓		Not Applicable to area of field activities
Alternate BMPs Used:					If used, state reason:
⁽¹⁾ Applicability to a specific project will be determined by the QSD. ⁽²⁾ The QSD will ensure implementation of one of the minimum measures listed or a combination thereof to achieve and maintain the risk level requirements.					

Table 3.2 Temporary Erosion Control BMPs

CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement ⁽¹⁾	BMP Used		If not used, state reason
			YES	NO	
CASQA = California Stormwater Quality Association					

3.2.2 Implementation of Erosion Control BMPs

BMPs will be deployed in a sequence to follow the progress of field activities and resulting soil disturbance. As the locations of field activities change, erosion controls will be adjusted accordingly to control stormwater runoff at the downgradient site perimeter, as necessary. BMPs will be mobilized as follows:

Throughout Construction:

- The CERCLA SWMP implementer will monitor weather at a minimum two days in advance using National Weather Service reports to track conditions and alert crews to the potential onset of rainfall events. Weather conditions will be logged in the daily field log.
- Soil-disturbing activities will not be performed during significant rainfall events (50% probability of 0.5 inches of precipitation per day or more). When the planned field activities are interrupted by a significant rainfall event, soil disturbance will not resume until Site soil conditions are suitable.
- Disturbed soil areas will be stabilized with temporary erosion control or with permanent erosion control as soon as practicable after field activity at each construction (remediation) location is completed.

During the Non-Rainy Season

- The project schedule will sequence field activities with the installation of both erosion control and sediment control measures in advance of a significant rainfall event.

During the Rainy Season:

- Disturbed areas will be stabilized with temporary or permanent erosion control before significant rainfall events.
- Prior to forecasted significant rainfall events, temporary erosion control BMPs will be deployed and the integrity and effectiveness of these BMPs will be inspected.

These temporary erosion control BMPs will be implemented in conformance with the following guidelines and as outlined in the BMP Fact Sheets provided in Appendix C. If there is a conflict between documents, the RAWP will prevail over narrative in the body of the CERCLA SWMP or guidance in the BMP Fact Sheets. The narrative in the body of the CERCLA SWMP prevails over guidance in the BMP Fact Sheets.

Scheduling

The trenching, removal of existing sewer and storm drain pipes, and backfilling will be sequenced to minimize the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking.

Earth Dike and Berms

Berms will be built upstream of the trench excavations by utilizing sand bags to divert and control stormwater runoff during trench excavation. Sand bag berms can divert sheet flow over slopes, prevent run-on into open trench excavations or active construction zones, and control erosion along with transport of sediment.

Wind Erosion Control

Dust control measures will be used to stabilize soil from wind erosion and to reduce dust generated by clearing and grading activities, construction vehicle traffic on unpaved areas, and sediment tracking onto paved roads. Water spray will be used to control dust and wind erosion, with water application controlled to prevent surface runoff. Water trucks will be used for dust control. In addition to wet suppression (watering), preventive measures to be used for dust control include minimizing disturbed surface areas, limiting on-site vehicular traffic and speed, and controlling the number and activity of vehicles on the Site at a given time

3.2.3 Sediment Controls

Sediment controls are temporary or permanent structural measures that are intended to complement the selected erosion control measures and reduce sediment discharges from active construction areas. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.

The following sediment control BMP selection table (Table 3.3) indicates the BMPs that will be implemented to control sediment on the construction site. Fact Sheets for temporary sediment control BMPs are provided in Appendix C.

Table 3.3 Temporary Sediment Control BMPs

CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement ⁽¹⁾	BMP used		If not used, state reason
			YES	NO	
SE-1	Silt Fence	✓ ^{(2) (3)}		✓	Other methods used
SE-2	Sediment Basin			✓	Other methods used
SE-3	Sediment Trap			✓	Other methods used
SE-4	Check Dams			✓	No constructed drainage swales in area of field activities
SE-5	Fiber Rolls	✓ ⁽²⁾⁽³⁾	✓		
SE-6	Gravel Bag Berm	✓ ⁽³⁾	✓		
SE-7	Street Sweeping	✓	✓		
SE-8	Sandbag Barrier		✓		
SE-9	Straw Bale Barrier			✓	Other methods used such as fiber rolls
SE-10	Storm Drain Inlet Protection	✓	✓		
SE-11	ATS			✓	Not applicable to the level of risk.
SE-12	Temporary Silt Dike			✓	Other methods used
SE-13	Compost Sock and Berm	✓ ⁽³⁾		✓	Other methods used
SE-14	Biofilter Bags	✓ ⁽³⁾		✓	Not required for this project
TC-1	Stabilized Construction Entrance and Exit	✓		✓	There is no separate entrance or exit to the site.
TC-2	Stabilized Construction Roadway			✓	Not required for this project
TC-3	Entrance Outlet Tire Wash	✓		✓	There is no separate entrance or exit to the site.
Alternate BMPs Used:					If used, state reason:
⁽¹⁾ Applicability to a specific project will be determined by the QSD.					
⁽²⁾ The QSD will ensure implementation of one of the minimum measures listed or a combination thereof to achieve and maintain the risk level requirements.					
⁽³⁾ Risk Level 2 and 3 determinations will require linear sediment control along toe of slope, face of slope, and at the grade breaks of exposed slope.					

These temporary sediment control BMPs will be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix C. If there is a conflict between documents, the RAWP will prevail over narrative in the body of the CERCLA SWMP or guidance in the BMP Fact Sheets. The narrative in the body of the CERCLA SWMP prevails over guidance in the BMP Fact Sheets.

During the Non-Rainy Season

- Temporary sediment controls will be implemented at the draining perimeter of disturbed soil areas before significant rainfall events.
- Fiber rolls and gravel bags will be maintained on site and deployed for barriers as needed.

During the Rainy Season

- Temporary sediment controls will be implemented at the draining perimeter of disturbed soil areas.
- Fiber rolls will be deployed along the toe of slopes of the stockpiled soils to filter storm water run-off.
- Fiber rolls and sandbags will be used around on the ground surface around the inlets during significant rainfall events (50 percent probability of 0.5 inches of precipitation per day or more).

Sandbags

Sandbags will be used upstream of the trench excavations as a drainage diversion and for sediment trapping and stormwater velocity and erosion control. The sandbags also will be installed around the stormwater inlets for protection purposes.

Sandbags may be used at the following locations at the site:

- Around and along the downgradient toe of all soil stockpiles.
- Below active construction areas.
- In concentrated drainage flow courses and in areas downgradient of active work areas, as needed.
- As a diversion berm to stormwater run-on upgradient of active work areas and trench excavations.

Fiber Rolls

Fiber rolls can be used to control sediment by reducing flow velocity and allowing sediment to settle. Filter barriers will be installed on the ground surface around the storm drain inlets. In areas where heavy traffic occurs, filter fabric will be placed inside the inlets.

Filter barriers may be used at the following locations at the Site:

- Around stockpiles and stockpile staging areas.
- Downgradient of any active areas where soil disturbance may be expected.
- At operational storm drains as a form of inlet protection.

Gravel Bag Berm

Gravel bag berms allow for water to temporarily pond while allowing sediment to settle. Protection of storm inlets will be done with gravel bag berms as well as sandbags.

Storm Inlet Protection

Storm drain inlets adjacent to construction activities will be protected from any authorized or unauthorized non-stormwater discharges. Gravel bags and/or fiber rolls will be applied.

Stabilized Construction

To reduce the tracking of mud and dirt onto public roads from haul trucks and construction vehicles, site entrances and exits will be stabilized using base rock. Stabilized entrances and exits will be maintained throughout the construction period.

3.3 NON-STORMWATER CONTROLS AND WASTE AND MATERIALS MANAGEMENT

3.3.1 Non-Stormwater Controls

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the General Permit, are prohibited. Non-stormwater discharges for which a separate NPDES permit is required by the RWQCB are prohibited unless coverage under a separate NPDES permit has been obtained for the discharge. The selection of non-stormwater BMPs is based on the list of construction activities with a potential for non-stormwater discharges identified in Section 2.5 of this CERCLA SWMP.

Non-stormwater wastewater generated on the Site may include water from decontamination of equipment and personnel and from dewatering of excavations or saturated excavated soil. Wastewater may be stored on the Site as described in the RAWP to prevent releases to the surface and storm drains and will be disposed of as described in the RAWP. It will be sampled and may be disposed of into the sanitary sewer if it meets publicly owned treatment works acceptance limits. Water not meeting those requirements will be transported off site to the appropriate disposal facility.

Most of the trench locations include hardscape, including asphalt. Gilbane will repair the pavements to match the existing areas.

Table 3.4 identifies the non-stormwater control BMPs that will be implemented to control non-sediment discharges to stormwater drains at the Site. Fact Sheets for temporary non-stormwater control BMPs are provided in Appendix C.

Table 3.4 Temporary Non-Stormwater BMPs

CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement ⁽¹⁾	BMP used		If not used, state reason
			YES	NO	
NS-1	Water Conservation Practices	✓	✓		
NS-2	Dewatering Operation		✓		Not Applicable to field activities
NS-3	Paving and Grinding Operation			✓	Not Applicable to field activities
NS-4	Temporary Stream Crossing			✓	Not required for the field activities
NS-5	Clear Water Diversion			✓	Not required for the field activities
NS-6	Illicit Connection- Illegal Discharge Connection	✓	✓		
NS-7	Potable Water Irrigation Discharge Detection			✓	Not required for the field activities
NS-8	Vehicle and Equipment Cleaning	✓	✓		
NS-9	Vehicle and Equipment Fueling	✓	✓		
NS-10	Vehicle and Equipment Maintenance	✓	✓		
NS-11	Pile Driving Operation			✓	Not Applicable to field activities
NS-12	Concrete Curing			✓	
NS-13	Concrete Finishing			✓	
NS-14	Material and Equipment Use Over Water			✓	No field activities or materials/equipment use over water
NS-15	Demolition Removal Adjacent to Water			✓	No demolition activities adjacent to water in current SOW
NS-16	Temporary Batch Plants			✓	Not required for field activities
Alternate BMPs Used:					If used, state reason:
⁽¹⁾ Applicability to a specific project will be determined by the QSD.					

Non-stormwater BMPs will be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix C. If there is a conflict between documents, the RAWP will prevail over narrative in the body of the CERCLA SWP or guidance in the BMP Fact Sheets. The narrative in the body of the CERCLA SWP prevails over guidance in the BMP Fact Sheets.

Water Conservation Practices

Appropriate water application and conservation practices will be followed to ensure that water used on site does not create surface flow capable of carrying pollutants off the footprint area for field activities.

Vehicle and Equipment Cleaning

Vehicle and equipment cleaning will occur in designated decontamination areas constructed with containment for decontamination water.

Vehicle and Equipment Fueling

Diesel Fuel

During construction, diesel fuel will be delivered and pumped directly into construction equipment. Fueling will occur away from drainage courses to prevent run-on of stormwater and runoff of spills. If a spill occurs as equipment is fueled, the spill will be immediately contained with a spill kit. The individual noting the spill will be responsible for contacting the Project Superintendent, who will notify the Navy, which in turn is responsible for notifying the regulatory agencies as necessary, and for managing the cleanup and removal of contaminated soils in accordance with regulations.

Fuels for Passenger Vehicles and Trucks and Vehicle-Related Lubricants

Fueling of passenger vehicles and trucks on site will occur in designated areas at the Gilbane office area, which is located away from drainage courses, to prevent the run-on of stormwater and the runoff of spills. If a spill occurs as equipment is fueled, the spill will be contained immediately with spill kits, and an excavation retention trap will be provided. The individual noting the spill will be responsible for contacting the Project Superintendent, who will notify the Navy, which in turn is responsible for notifying the regulatory agencies as necessary and for managing cleanup and removal of contaminated soils in accordance with regulations.

A limited variety of vehicles and equipment will be used throughout the project, including excavators, steel plate compactors, backhoes, and trucks. BMPs NS-9 and NS-10 will be used to prevent discharges of fuel and other vehicle fluids on or in the vicinity of the site during the field activities. Vehicles will be fueled off site or at a temporary fueling area. Vehicle and equipment maintenance, if necessary during field activities, will occur in designated areas outside of the construction site that have been approved by the Navy. The proposed location for this activity will be at the Gilbane job site trailer area.

Vehicle and Equipment Maintenance

Heavy Equipment and Vehicle-Related Lubricants

All heavy equipment and vehicles will be inspected prior to use on site and at the beginning of each workday for oil, lubricant, and hydraulic leaks. Leaking equipment will be repaired or removed from service, and small leaks will be cleaned up immediately. Excessive application of grease during equipment maintenance will be avoided, and accumulated

grease will be wiped off. Contaminated rags will be disposed properly off site. All oil and lubricant supplies will be stored securely in drums or bins to prevent an uncontrolled discharge of spilled materials.

Passenger Vehicles and Trucks

Passenger vehicles and trucks will be inspected daily for possible leaks, but any major service will be performed off site at commercial facilities.

To the extent practical, routine vehicle and equipment maintenance will be performed in established and permanent maintenance facilities. When required in the field, drip pans or absorbent pads will be used for all vehicle and equipment maintenance activities that involve grease, oil, solvents, coolants, or other vehicle/equipment fluids.

3.3.2 Materials Management and Waste Management

Materials management control practices consist of implementing procedural and structural BMPs for handling, storing, and using construction materials to prevent the release of those materials into stormwater discharges. The materials may be used continuously, such as fuel for vehicles and equipment, or the materials may be used for a discrete period, such as soil binders for temporary stabilization.

Waste management consists of procedural and structural BMPs for handling, storing, and ensuring proper disposal of wastes, to prevent the release of those wastes into stormwater discharge points.

Materials and waste management pollution control BMPs will be implemented to minimize stormwater contact with construction materials, wastes, and service areas, and to prevent materials and wastes from being discharged off site. The primary mechanisms for stormwater contact that will be addressed include:

- Direct contact with precipitation.
- Contact with stormwater run-on and run-off.
- Wind dispersion of loose materials.
- Direct discharge to the storm drain system through spills or dumping.
- Extended contact with some materials and wastes, such as asphalt cold mix and treated wood products, which can leach pollutants into stormwater.

A list of construction activities is provided in Section 2.4. Table 3.5 identifies the BMPs that will be implemented to handle materials and control construction site wastes associated with these construction activities. Fact Sheets for Materials and Waste Management BMPs are provided in Appendix C.

Table 3.5 Temporary Materials Management BMPs

CASQA Fact Sheet	BMP Name	Meets a Minimum Requirement ⁽¹⁾	BMP used		If not used, state reason
			YES	NO	
WM-01	Material Delivery and Storage	✓	✓		
WM-02	Material Use	✓	✓		
WM-03	Stockpile Management	✓	✓		
WM-04	Spill Preservation and Control	✓	✓		
WM-05	Solid Waste Management	✓	✓		
WM-06	Hazardous Waste Management	✓	✓		
WM-07	Contaminated Soil Management		✓		
WM-08	Concrete Waste Management	✓		✓	No concrete work in current SOW
WM-09	Sanitary-Septic Waste Management	✓	✓		
WM-10	Liquid Waste Management		✓		
Alternate BMPs Used:					If used, state reason:
⁽¹⁾ Applicability to a specific project will be determined by the QSD.					

Material management BMPs will be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix C. If there is a conflict between documents, the RAWP will prevail over narrative in the body of the CERCLA SWMP or guidance in the BMP Fact Sheets. The narrative in the body of the CERCLA SWMP prevails over guidance in the BMP Fact Sheets.

Material Delivery and Storage

Material deliveries will be coordinated with the Site Superintendent and stored in a manner specified by the manufacturer. To prevent, reduce or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses, the following practices will be followed: minimize the storage of hazardous materials on site, store materials in a designated area, install secondary containment for the storage area, conduct regular inspections, and train employees and subcontractors on material handling and storage. The materials will be stored at the on-site Gilbane office.

Material Use

Materials are to be used in the manner for which they were designed. Actions to prevent or reduce discharge of pollutants to the storm drain system or watercourses from material use include: using alternative products, minimizing hazardous material use on site, and training employees and subcontractors.

To prevent chemical pollutants from entering the environment, hazardous materials will be stored in a central area at least 50 feet from surface waters. Containers will be stored properly when not in use and will be placed in the appropriate storage cabinet or secondary containment structure to reduce the risks of fire and releases.

Stockpile Management

Stockpile management procedures and practices will be designed to reduce or eliminate air and stormwater pollution from stockpiles of soil. During excavation, backfilling, and grading, soils may be stockpiled in areas adjacent to that activity. Because the soil will be stockpiled in a generally uncompacted condition, it is subject to erosion. In addressing stockpiling, BMPs may include diversion of drainage from the stockpiles, installation of filter barriers on the downgradient toe of stockpile slope, and dust control. In addition, large stockpiles will be sloped to reduce the infiltration of rainwater. Stockpiles of excavated materials will be covered with 10-mil visqueen or soil stabilizing agent when not in use.

Spill Preservation and Control

The radiological surveys at HPNS will be conducted in accordance with the project-specific RAWP to which this SWMP is an attachment, and the project-specific Accident Prevention Plan/Site Safety and Health Plan (Gilbane, 2018^{7b}). These documents will be maintained on the Site, and outline the specific steps to be followed if a spill or release occurs. If changes or revisions to these documents are made, the most recent version will supersede the previous iteration.

Field practices to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills include reducing the chance for spills, stopping the

source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

The BMPs for spill prevention and control include the following controls.

- Train employees and subcontractors in proper spill response procedures.
- Stop the source of a spill immediately, if safe to do so.
- If safe to do so, contain and clean up spills immediately and notify the Gilbane Project Superintendent immediately.
- Spills of hazardous materials that cannot be cleaned up or that have resulted in a release should be reported immediately to the Gilbane Project Superintendent, who will immediately notify the Navy, which in turn will be responsible for notifying the regulatory agencies as necessary and for managing cleanup.

Solid Waste Management

All construction waste such as removed sewer and storm drain piping or demolished asphalt pavement, once surveyed for radiological contamination, will be disposed of in dumpsters, roll-off bins, or other similarly approved containers in designated areas located throughout the Site. Specific procedures to handle all types of waste expected within Gilbane work areas at HPNS are included in the ~~Internal Draft Environmental Protection~~*Radiological Materials and Waste Management Plan*, which is part of the project-specific RAWP to which this SWMP is an attachment (Gilbane, 2018^{7a}). Copies of these plans will be maintained at the Site.

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Contaminated Soil Management

Stockpiles of excavated soil generated during the storm drain and sanitary sewer line removal activities will be stored in a designated storage area, the location of which will be authorized by the Caretaker Site Office (CSO). These contaminated soil management practices will be implemented during trench excavation, radiological screening, and stockpiling activities. The excavation activities require the use of a radiological screening pad, dewatering pad, low-level radiological waste/low-level mixed waste (LLRW/LLMW) staging area, and soil stockpile area for temporary storage of soils following excavation/screening and prior to re-use or off-site disposal.

The individual stockpiles will be limited to a maximum of approximately 500 cubic yards for proper stockpile management. All stockpiles will be covered with plastic sheeting at the end of each field day. Plastic sheeting will be suitably secured with sandbags to hold the sheeting in place. Any stormwater that comes into contact with the stockpiled soil will be contained on site where necessary to prevent erosion.

Open storm drain or sanitary sewer lines left in place during the removal process will be plugged to prevent water from entering or exiting the lines and to eliminate the release of any contamination that may be present in the lines.

Hazardous Waste Management

Potential hazardous wastes at the Site include contaminated soil and spills or releases of fuel, oil, and lubricants. Specific procedures to handle all types of waste expected at the Site have been developed by Gilbane and are included in the Radioactive Materials and Waste Management Plan (RMWMP) attached as Appendix C to the RAWP.

Sanitary-Septic Waste Management

Proper sanitary and septic waste management practices, consisting of providing convenient, well-maintained facilities, and arranging for regular service and disposal, will be implemented to prevent the discharge of pollutants to stormwater from sanitary and septic waste.

Liquid Waste Management

The implementation of liquid waste management will include procedures and practices to prevent the discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes. Waste water that is generated by dewatering of an open trench will be stored in high density polyethylene (HDPE) Baker tanks and will be chemically screened and characterized prior to disposal.

These management practices will be implemented during removal activities and decontamination at all locations, and while other field activities are performed.

3.4 POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES

Post-construction BMPs are permanent measures installed as part of the construction activities, and designed to reduce or eliminate pollutant discharges from the Site after construction is completed.

This Site area is hard surfaced. Therefore, the only post-construction stormwater management measures will be those applied to any stockpiled soils that are scheduled to be disposed of at a later date.

Section 4 BMP Inspection and Maintenance

4.1 BMP INSPECTION AND MAINTENANCE

The General Permit requires routine weekly inspections of BMPs, along with inspections before, during, and after qualifying rain events producing precipitation of 0.5 inch or more. A BMP inspection checklist must be filled out for inspections and maintained on site with the CERCLA SWMP. The inspection checklist includes the necessary information covered in Section 7.6. A blank inspection checklist is included in Appendix D. Completed checklists will be kept in Appendix F "Monitoring Records."

Components of the BMPs will be maintained regularly to ensure proper and effective functionality. If necessary, corrective actions will be implemented within 72 hours of identified deficiencies, and associated amendments to the CERCLA SWMP will be prepared by the QSD.

~~During periods of no work (including evenings, weekends, and holidays), high winds, or heavy rainfall, the contaminated soil stockpiles will either be covered with 10-mil plastic sheeting weighed down with sand bags or will be sprayed with magnesium chloride, as appropriate, to prevent erosion by wind and/or water.~~

Specific details for maintenance, inspection, and repair of Construction Site BMPs can be found in the BMP Factsheets in Appendix C.

Section 5 Training

Section 6 identifies the SWMP Implementer and QSD for the project. To promote stormwater management awareness specific to this project, periodic training of job site personnel will be included as part of routine project meetings (e.g., daily/weekly tailgate safety meetings) or task-specific training as needed.

The SWMP Implementer will be responsible for providing this information at the meetings, and subsequently completing the training logs shown in Appendix E, which identifies the site-specific stormwater topics covered as well as the names of site personnel who attended the meeting. Tasks may be delegated to trained employees by the SWMP Implementer, under the condition that adequate supervision and oversight is provided. Training will correspond to the specific task delegated, including CERCLA SWMP implementation, BMP inspection and maintenance, and recordkeeping.

Documentation of training activities (formal and informal) will be retained in Appendix E.

Section 6 Responsible Parties and Operators

6.1 RESPONSIBLE PARTIES

Table 6.1 lists the project site personnel who will be responsible for CERCLA SWMP activities, including the Project Manager, CERCLA SWMP developer, and CERCLA SWMP implementer.

Table 6.1 Responsible Parties for this CERCLA SWMP

CERCLA SWMP Development and Revision Contact		
Cenk Ergin, P.E., QSD	Gilbane Project Engineer	925-946-3260
CERCLA SWMP Implementer Contact		
Ken Leonard	Gilbane Project Health and Safety Manager	925-250-8959
Project Manager		
Brett Womack	Gilbane Project Manager	925-250-8027

The CERCLA SWMP implementer identified for the project will have primary responsibility and significant authority for the implementation, maintenance, and inspection and monitoring of CERCLA SWMP requirements. The CERCLA SWMP implementer will be available at all times throughout the duration of the project. Duties of the CERCLA SWMP implementer include but are not limited to the following.

- Implementing all elements of the CERCLA SWMP, including but not limited to:
 - Ensuring that all BMPs are implemented, inspected, and properly maintained.
 - Performing non-stormwater and stormwater visual observations and inspections.
 - Performing routine inspections and observations.
 - Directing non-stormwater management, and materials and waste management activities such as: monitoring discharges; general Site clean-up; vehicle and equipment cleaning, fueling, and maintenance; spill control; ensuring that no materials other than stormwater are discharged in quantities that will have an adverse effect on receiving waters or storm drain systems.
- Ensuring elimination of unauthorized discharges.
- Mobilizing crews to make immediate repairs to the control measures.
- Coordinating with the contractor(s) to assure all necessary corrections/repairs are made immediately and that the project complies with the CERCLA SWMP at all times.
- Notifying the QSP immediately of off-site discharges or other non-compliance events.

The implementer may delegate these inspections and activities to an appropriately trained employee, but will ensure adequacy and adequate deployment.

Section 7 Construction Site Monitoring Program

7.1 PURPOSE

This Construction Site Monitoring Program (CSMP) was developed to:

1. Determine whether non-visible pollutants are present at the construction site and are causing or contributing to exceedances of water quality objectives.
2. Determine whether immediate corrective actions, additional BMP implementation, or CERCLA SWMP revisions are necessary to reduce pollutants in stormwater discharges and authorized non-stormwater discharges.
3. Determine whether BMPs included in the CERCLA SWMP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges.

Gilbane will ensure that all specific monitoring requirements for the scoping activities at HPNS are implemented as stated in this Site-Specific CERCLA SWMP.

7.2 APPLICABILITY OF PERMIT REQUIREMENTS

This project does not require any construction permit due to the disturbed area being less than 1 acre; therefore, this SWMP identifies the following types of monitoring as being applicable for this project.

- Visual inspections of BMPs.
- Visual monitoring of the site related to qualifying storm events.
- Visual monitoring of the site for non-stormwater discharges.
- Sampling and testing in the event of breach of BMPs

7.3 WEATHER AND RAIN EVENT TRACKING

Visual monitoring and inspection requirements are triggered by a qualifying rain event, of which the crew will have been notified per the advance weather outlook provided by the CERCLA SWMP implementer (Section 3.2.2). The General Permit defines a qualifying rain event as any event that produces 0.5 inch of precipitation within a 24-hour period. A minimum of 48 hours of dry weather will be used to distinguish between separate qualifying storm events.

7.3.1 Weather Tracking

The implementer should consult the National Oceanic and Atmospheric Administration (NOAA) daily for the weather forecasts. These forecasts can be obtained at [HYPERLINK "<http://www.srh.noaa.gov/>"].

7.3.2 Rain Gauges

The rain gauge recorded in daily contractor quality control reports. The nearest appropriate governmental rain gauge is located at the San Francisco International Airport (SFO), approximately 10 miles south of HPNS. The SFO rain gauge is maintained by the National Weather Service and hourly readings can be found at [HYPERLINK "<http://www.weather.gov/data/obhistory/KSFO.html>"].

7.4 MONITORING LOCATIONS

Monitoring locations will vary depending on where work is being performed at the time of monitoring. Monitoring locations are described in the Sections 7.6.5 and 7.7.5

7.5 SAFETY AND MONITORING EXEMPTIONS

Safety practices for sample collection will be in accordance with the *Final Internal Draft Health and Safety Plan, HPNS, San Francisco, CA* (Gilbane, 2018^{7b}). Trips, slips, and falls are the primary safety hazard for performing visual monitoring. If a significant rainfall event (50 percent probability of 0.5 inches of precipitation or more within a 24-hour period) is anticipated for a work day, stormwater monitoring will be discussed as part of the tailgate safety meeting at the beginning of the work day.

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This project is not required to conduct visual observations (inspections) under the following conditions.

- During dangerous weather conditions such as flooding and electrical storms.
- Outside of scheduled Site business (work) hours.

Scheduled Site business (work) hours are Monday through Thursday 6:30 a.m. to 5 p.m.

If visual monitoring of the Site is unsafe because of the dangerous conditions noted above, then the implementer will document the conditions for why an exception to performing the monitoring was necessary. Field daily reports stating the reasons for an exception to performing the monitoring can be utilized as backup exemption documentation. The exemption documentation will be filed in Appendix F, Monitoring Records.

7.6 VISUAL MONITORING

Visual monitoring includes observations and inspections. Inspections of BMPs are required to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Visual observations of the Site are required to observe stormwater drainage areas, and to identify any spills, leaks, or uncontrolled pollutant sources.

Table 7.1 identifies the required frequency of visual observations and inspections. Inspections and observations will be conducted at the locations identified in Section 7.6.1 and Section 7.6.2.

Table 7.1 Summary of Visual Monitoring and Inspections

Type of Inspection	Frequency
<i>Routine Inspections</i>	
BMP Inspections	Weekly ¹
BMP Inspections – Tracking Control	Daily
Non-Stormwater Discharge Observations	Quarterly
<i>Rain Event Triggered Inspections</i>	
Site Inspections Prior to a Qualifying Event	Within 48 hours of a qualifying event ²
BMP Inspections During an Extended Storm Event	Every 24-hour period of a rain event ²

Table 7.1 Summary of Visual Monitoring and Inspections

Type of Inspection	Frequency
Site Inspections Following a Qualifying Event	Within 48 hours of a qualifying event ²
¹ BMPs must be inspected weekly, except for those identified to be inspected more frequently.	
² Inspections are only required during scheduled Site operating hours.	

7.6.1 Routine Observations and Inspections

Routine Site inspections and visual monitoring are necessary to ensure that the project is in compliance with the applicable requirements of the General Permit.

7.6.1.1 Routine BMP Inspections

Inspections of BMPs are conducted to identify and record:

- BMPs that are properly installed.
- BMPs that need maintenance to operate effectively.
- BMPs that have failed.
- BMPs that could fail to operate as intended.

7.6.1.2 Non-Stormwater Discharge Observations

Each drainage area will be inspected for the presence of or indications of prior unauthorized and authorized non-stormwater discharges. The following inspection findings will be recorded.

- Presence or evidence of any non-stormwater discharge (authorized or unauthorized).
- Pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.).
- Source of discharge.

7.6.2 Rain-Event Triggered Observations and Inspections

Visual observations of the Site and inspections of BMPs are required prior to a qualifying rain event, following a qualifying rain event, and every 24-hour period during a qualifying rain event. Pre-rain inspections will be conducted after consulting NOAA and determining that a precipitation event with a 50 percent probability of 0.5 inch of precipitation or more within a 24-hour period has been predicted.

7.6.2.1 Visual Observations Prior to a Forecasted Qualifying Rain Event

Within 48 hours prior to a qualifying event, a stormwater visual monitoring Site inspection will include observations of the following locations:

- Stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources.
- Location of each BMP to verify proper installation or implementation, appropriate maintenance, and suitable integrity to perform as intended during the qualifying event.
- Any non-stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.

7.6.2.2 BMP Inspections During an Extended Storm Event

During an extended rain event (multiple consecutive 24-hour periods with 0.5 inch or more of rain), BMP inspections will be conducted to identify and record:

- BMPs that are properly installed.
- BMPs that need maintenance to operate effectively.
- BMPs that have failed.
- BMPs that could fail to operate as intended.

If the construction site is not accessible during the rain event, the visual inspections will be performed at all relevant outfalls, discharge points, and downstream locations. The inspections should record any projected maintenance activities.

7.6.2.3 Visual Observations Following a Qualifying Rain Event

Within 48 hours following a qualifying rain event (0.5 inch of rain within a 24-hour period) a stormwater visual monitoring Site inspection is required to observe:

- Stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources.
- Location of each BMP to verify proper installation or implementation, appropriate maintenance, and suitable integrity to perform as intended during the qualifying event.
- Need for additional BMPs.
- Any non-stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.
- Discharge of stored or contained rain water.

7.6.3 Visual Monitoring Procedures

Visual monitoring will be conducted by the Qualified SWPPP Practitioner (QSP), or by staff trained by and under the supervision of the QSP.

The name(s) and contact number(s) of the site visual monitoring personnel are listed below. Their training qualifications are provided in Appendix F.

Assigned inspector: Ken Leonard Contact phone: 925-250-8959

Alternate inspector: Henry Ng Contact phone: 925-250-9339

Stormwater observations will be documented on the Visual Inspection Field Log Sheet (Appendix D, Inspection Forms). BMP inspections will be documented on the site-specific BMP inspection checklist.

Within 2 days of the inspection, the implementer will submit copies of the completed inspection report to the Navy. The completed reports will be kept in Appendix F, Monitoring Records. Any photographs used to document observations will be referenced on the stormwater site inspection report and maintained with the Monitoring Records in Appendix F.

7.6.4 Visual Monitoring Follow-Up and Reporting

Correction of deficiencies identified by the observations or inspections, including required repairs or maintenance of BMPs, will be initiated and completed as soon as possible.

If identified deficiencies require design changes, including additional BMPs, changes will be initiated within 72 hours of identification and be completed as soon as practical. When design changes to BMPs are required, the CERCLA SWMP will be amended to reflect the changes.

Deficiencies identified in site inspection reports and correction of deficiencies will be tracked on the Inspection Field Log Sheet or BMP Inspection Report and will be submitted to the SWMP implementer and will be kept in Appendix F, Monitoring Records.

7.6.5 Visual Monitoring Locations

The inspections and observations identified in Sections 7.6.1 and 7.6.2 will be conducted at all trench excavations and stockpile locations identified on Figures 2 and 3.

Due to the current scope of work, there will be no discharge from the trench excavation areas. Therefore, there will not be any drainage areas identified. Potential discharge point locations were identified on the Site based on the possibility of a breach/malfunction in the installed BMPs during a storm event.

7.7 WATER QUALITY SAMPLING AND ANALYSIS

Sampling and testing of stormwater runoff will occur only if the visual monitoring indicates possible pollution due to breach/malfunction of BMPs. If suspended particulate matter is observed in the stormwater runoff, a sufficient sample volume will be collected and the turbidity and pH of the water measured in the field using a multi-parameter water quality meter (YSI 600XL or equivalent suitable for measuring pH, temperature, dissolved oxygen, salinity, and turbidity) following procedures as established by the manufacturer of the meter. Results of the field tests, including the time and location of sample collection, will be recorded on a Sampling Log Sheet (Appendix D). Following this initial sampling and analysis, a follow-up visual inspection will be conducted, and sampling and testing will be performed if visible pollutants are observed, at 2-hour intervals during the remainder of the business hours, unless rainfall and runoff have ceased. If stormwater discharge continues to be observed on the subsequent business day(s), the visual monitoring, sampling, and testing will be performed at the beginning of business hours and repeated 6 hours later, unless rainfall and run-off have ceased.

If an oily sheen is observed from the visual monitoring of the stormwater runoff, sufficient stormwater to fill two 1-liter glass jars will be collected and analyzed following procedures described in Section 7.7.1.

7.7.1 Sampling and Analysis Plan for Non-Visible Pollutants in Stormwater Runoff Discharges

This Sampling and Analysis Plan for Non-Visible Pollutants describes the sampling and analysis strategy and schedule for monitoring non-visible pollutants in stormwater runoff discharges from the project site.

Sampling for non-visible pollutants will be conducted when (1) a breach, leakage, malfunction, or spill is observed or known to have occurred; (2) the leak or spill has not been cleaned up prior to the rain event; and (3) there is the potential for discharge of non-visible pollutants to surface waters or a drainage system.

The following construction materials, wastes, or activities, as identified in Section 2.5, are potential sources of non-visible pollutants to stormwater discharges from the project.

- Fuel.
- Sanitary septic from portable toilets.
- Equipment decontamination water
- Uncovered stockpile material with contaminated soil

Based on the discussion of stormwater run-on in Section 2.2, stormwater run-on is not anticipated from locations without known potential to contribute non-visible pollutants to stormwater discharges from the project site.

7.7.1.1 Sampling Schedule

Collection of discharge samples for non-visible pollutant monitoring will be triggered when any of the following conditions are observed during site inspections conducted prior to or during a significant rain event.

- Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents stormwater contact and runoff from the storage area.
- Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the rain event, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- A construction activity, including but not limited to those in Section 2.5, with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the rain event, (2) BMPs were observed to be breached, malfunctioning, or improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.

7.7.1.2 Sampling Locations

Sampling locations are based on proximity to the storage or use of non-visible pollutants; accessibility for sampling; and personnel safety. Planned non-visible pollutant sampling locations are shown on Figure 3 and Table 7.2 and 7.3.

One (1) sampling location on the project site and the contractor's yard has been identified for the collection of samples of runoff from planned material and waste storage areas, and areas where non-visible pollutant-producing construction activities are planned.

Table 7.2 Non-Visible Pollutant Sample Locations – Contractors' Yard

Sample Location Number	Sample Location Description	Sample Location Latitude and Longitude (Decimal Degrees)
SP-1	Laydown and Refueling Area, Staging/ Material Storage/Vehicle Storage/ Portable Toilet Storage Area	37°43'34.15"N 122°21'55.09"W

One sampling locations have been identified for the collection of samples of runoff from drainage areas contaminated by historical usage of the site.

Table 7.3 Non-Visible Pollutant Sample Locations – Areas of Historical Contamination

Sample Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
SP-2	East of Building 211 and the Foundation of Building 224	37°43'37.60"N 122°21'28.37"W
SP-3	South of Building 211	37°43'35.35"N 122°21'30.99"W

One (1) sampling location has been identified for the collection of an uncontaminated sample of runoff as a background sample for comparison with the samples being analyzed for non-visible pollutants. This location was selected so the sample will not have come in contact with the operations, activities, or areas identified in Section 7.7.1 or with disturbed soils areas.

Table 7.4 Non-Visible Pollutant Sample Locations – Background (Unaffected Sample)

Sample Location Number	Sample Location	Sample Location Latitude and Longitude (Decimal Degrees)
SP-4	North of Building 281	37°43'36.60"N 122°21'42.67"W

If a stormwater visual monitoring Site inspection conducted prior to or during a storm event identifies the presence of a material storage, waste storage, or operations area with spills or the potential for the discharge of non-visible pollutants to surface waters, or to a storm drain system that is at a location not listed above and has not been identified on the site maps, sampling locations will be selected by the SWMP implementer using the same rationale as that used to identify planned locations. Non-visible pollutant sampling locations will be identified by the SWMP implementer on the pre-rain event inspection form prior to a forecasted qualifying rain event.

7.7.1.3 Monitoring Preparation

Non-visible pollutant samples will be collected by:

Contractor	[FORMCHECKBOX]	Yes	[FORMCHECKBOX]	No
Consultant	[FORMCHECKBOX]	Yes	[FORMCHECKBOX]	No
Laboratory	[FORMCHECKBOX]	Yes	[FORMCHECKBOX]	No

Samples on the Site will be collected by the following contractor sampling personnel:

Name/Telephone Number: Ken Leonard / 925-250-8959

Alternate(s)/Telephone Number: Henry Ng / 925-250-9339

An adequate stock of monitoring supplies and equipment for monitoring non-visible pollutants will be available on the Site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the project Site will include, but are not limited to, clean powder-free nitrile gloves, sample collection equipment, coolers, an appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, and ice.

7.7.1.4 Analytical Constituents

Table 7.5 lists the specific sources and types of potential non-visible pollutants on the project site and the water quality indicator constituent(s) for that pollutant.

Table 7.5 Potential Non-Visible Pollutants and Water Quality Indicator Constituents

Pollutant Source	Pollutant	Water Quality Indicator Constituent
Antifreeze and Other Vehicle Fluids	Visually Observable – No Testing Required	
Batteries	Sulfuric acid, lead, pH	Lead, sulfate, or pH
Contaminated Soil	Petroleum products, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs)	Extractable petroleum hydrocarbons, PCBs, PAHs ⁽¹⁾
Oily wastes	Petroleum products, PAHs, PCBs	Extractable petroleum hydrocarbons, PCBs, PAHs ⁽¹⁾
Radioactive Impacted Soil	radionuclides of concern (ROCs; i.e., radium-226, cesium-137, and strontium-90)	No testing required.

- (1) Petroleum products may be visually observable (surface sheen). PAHs and PCBs may not be visible, and stormwater discharge contacting subsurface soil will be analyzed for PCBs and PAHs.

7.7.1.5 Sample Collection

Samples of discharge will be collected at the designated non-visible pollutant sampling locations shown on Figure 3 and listed in Section 7.7.1.2, or at the locations determined by observed breaches, malfunctions, leakages, spills, operational areas, soil amendment application areas, and historical site usage areas that triggered the sampling event.

Grab samples will be collected and preserved in accordance with the methods identified in Table 7.6. Only the SWMP implementer, or personnel trained in water quality sampling under the direction of the SWMP implementer, will collect samples.

Sample collection and handling requirements are described in Section 7.7.5.

7.7.1.6 Sample Analysis

Samples will be analyzed using the analytical methods identified in Table 7.6. Samples will be analyzed by:

Laboratory Name:	ARS International, LLC
Street Address:	2609 North River Road
City, State Zip:	Port Allen, LA 70767
Telephone Number:	(225) 381-2991
Point of Contact:	Rodney Varnell
ELAP Certification Number:	2785

Table 7.6 Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants

Constituent	Analytical Method	Minimum Sample Volume	Sample Containers	Sample Preservation	Reporting Limit	Maximum Holding Time
TPH – Diesel and Motor Oil Range Organics	EPA 8015D; prep by EPA 3510C/3520C	2 x 1 liter	1.0-liter amber glass with Teflon liners	Store at 4°C	50 ug/L	Extraction – 14 days Analysis – 40 days
PAHs	EPA 8270SIM	1 x 1 liter	Glass-Amber	Store at 4°C	10 ug/L	7 days
Metals (Arsenic)	EPA 6010C / 6020A ⁴	500 ml ⁷	Plastic	HNO ₃ and 4°C	5 ug/L	180 days
Pesticides / PCBs	EPA 8081A / 8082	1 x 1 liter	Glass-Amber	Store at 4°C	0.1 ug/L	7 days
<p>Notes:</p> <p>1. Analyses for non-visible pollutants only performed if conditions or observations identified in Section 7.6.1.2 occur.</p> <p>Abbreviations used in table:</p> <p>°C = degrees Celsius</p> <p>HNO₃ = nitric acid</p> <p>L = liter(s)</p> <p>mL = milliliter(s)</p> <p>TPH-g = total petroleum hydrocarbons (TPH), gasoline range</p> <p>TPH-d = TPH, diesel range</p> <p>TPH-mo = TPH, motor oil range</p> <p>ug/L = micrograms per liter</p>						

7.7.1.7 Data Evaluation and Reporting

The SWMP implementer will complete an evaluation of the water quality sample analytical results within 48 hours of receiving data.

Runoff/downgradient results will be compared with the associated upgradient/unaffected results and any associated run-on results. Should the runoff/downgradient sample show an increased level of the tested analyte relative to the unaffected background sample, which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences will be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs will be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs will be recorded as an amendment to the CERCLA SWMP.

The General Permit prohibits storm water discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 Code of Federal Regulations (CFR) §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities will be reported to the RWQCB and other agencies immediately, as required by 40 CFR §117.3 and §302.4.

7.7.2 Sampling and Analysis Plan for pH and Turbidity in Stormwater Runoff Discharges

Sampling and analysis of runoff for pH and turbidity is not required for this project.

7.7.3 Sampling and Analysis Plan for Non-Stormwater Discharges

This Sampling and Analysis Plan for non-stormwater discharges describes the sampling and analysis strategy and schedule for monitoring pollutants in authorized and unauthorized non-stormwater discharges from the project site in accordance with the requirements of the General Permit.

Sampling of non-stormwater discharges will be conducted when an authorized or unauthorized non-stormwater discharge is observed on the project Site. In the event that non-stormwater discharges run on to the project Site from off-site locations, and this run-on has the potential to contribute to a violation of a numeric action level (NAL), the run-on also will be sampled.

The following authorized non-stormwater discharges identified in Section 2.5, have the potential to be discharged from the project site.

- Water to control dust.

In addition to the above authorized non-stormwater discharges, some construction activities have the potential to result in an unplanned (unauthorized) non-stormwater discharge if BMPs fail. These activities include:

- Water from equipment decontamination.
- Fuel or oil (leaks from fueling operation).

7.7.3.1 Sampling Schedule

Samples of authorized or unauthorized non-stormwater discharges will be collected when they are observed.

7.7.3.2 Sampling Locations

Samples will be collected from the point of non-stormwater release, as well as the discharge point of the construction site where the non-stormwater discharge is running off the project Site. Approximate sample locations are shown on Figure 3 and include the locations identified below.

Three sampling locations on the project Site have been identified where non-stormwater discharges may run off from the project site. However, if a non-stormwater discharge is running off the project Site at a location other than those described below, samples will be collected from the actual discharge location.

Table 7.7 Non-Stormwater Discharge Sample Locations

Sample Location Number	Sample Location ¹	Sample Location Latitude and Longitude (Decimal Degrees)
SP-1	Gilbane Trailer / Office	37°43'34.15"N 122°21'55.09"W
SP-2	East of Building 211 and the Foundation of Building 224	37°43'37.60"N 122°21'28.37"W
SP-3	South of Building 211	37°43'35.35"N 122°21'30.99"W

¹ If the non-stormwater discharge is running off the project Site at a location other than those described in the table, samples will be collected from the actual discharge location.

7.7.3.3 Monitoring Preparation

Non-stormwater discharge samples will be collected by:

Contractor	[FORMCHECKBOX]	Yes	[FORMCHECKBOX]	No
Consultant	[FORMCHECKBOX]	Yes	[FORMCHECKBOX]	No
Laboratory	[FORMCHECKBOX]	Yes	[FORMCHECKBOX]	No

Samples on the project site will be collected by the following contractor sampling personnel:

Name/Telephone Number: Ken Leonard / 925-250-8959

Alternate(s)/Telephone Number: Henry Ng / 925-250-9339

An adequate stock of monitoring supplies and equipment for monitoring non-stormwater discharges will be available on the project site. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. Personnel trained in sampling will be available to collect samples in accordance with

the sampling schedule. Supplies maintained at the project Site will include, but are not limited to, clean powder-free nitrile gloves, sample collection equipment, coolers, the appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, and ice.

The contractor will obtain and maintain the field testing instruments, as identified in Section 7.7.3, for analyzing samples in the field by the contractor's sampling personnel.

7.7.3.4 Analytical Constituents

All non-stormwater discharges that flow through a disturbed area will, at minimum, be monitored for turbidity and pH.

Non-stormwater discharge run-on will be monitored, at minimum, for pH and turbidity. The SWMP implementer will identify additional pollutants to be monitored for each non-stormwater discharge incident based on the source of the non-stormwater discharge. If the source of an unauthorized non-stormwater discharge is not known, monitoring for pH, turbidity, methylene blue active substance, total organic content, and residual chlorine or chloramines is recommended to help identify the source of the discharge.

Table 7.8 lists the specific sources and types of potential non-visible pollutants on the project site and the water quality indicator constituent(s) for that pollutant.

Table 7.8 Potential Non-Stormwater Discharge Pollutants and Water Quality Indicator Constituents

Pollutant Source	Pollutant	Water Quality Indicator Constituent
Equipment Operation	Petroleum Hydrocarbons	TPH-g, TPH-d, TPH-mo
Equipment Maintenance	Petroleum Hydrocarbons	TPH-g, TPH-d, TPH-mo
Equipment Washing	Petroleum Hydrocarbons	TPH-g, TPH-d, TPH-mo
Equipment Fueling	Petroleum Hydrocarbons	TPH-g, TPH-d, TPH-mo

7.7.3.5 Sample Collection

Grab samples will be collected and preserved in accordance with the methods identified in Table 7.9. Only personnel trained in water quality sampling under the direction of the SWMP implementer will collect samples.

Sample collection and handling requirements are described in Section 7.7.5.

7.7.3.6 Sample Analysis

Samples will be analyzed using the analytical methods identified in Table 7.9.

7.7.3.7 Data Evaluation and Reporting

The SWMP implementer will complete an evaluation of the water quality sample analytical results.

Runoff results will also be evaluated for the constituents suspected in the non-stormwater discharge. Should the runoff sample indicate the discharge of a pollutant that cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences will be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs will be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs will be recorded as an amendment to the CERCLA SWMP.

The General Permit prohibits non-storm water discharges that contain hazardous substances at levels equal to or in excess of reportable quantities established in 40 CFR §117.3 and §302.4. Any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities will be immediately reported to the RWQCB.

Table 7.9 Sample Collection, Preservation and Analysis for Monitoring Pollutants in Non-Stormwater Discharges

Constituent	EPA Analytical Method	Minimum Sample Volume	Sample Bottle	Sample Preservation	Reporting Limit	Maximum Holding Time
TPH-g	8015D(Modified)	40 mL	3 x 40 mL VOA vial	HCL and 4°C	50 ug/L	14 Days
TPH-d	8015D(Modified)	1 L	2 x 1 L Amber	4°C	50 ug/L	7 Days
TPH-mo	8015D(Modified)	1 L	2 x 1 L Amber	4°C	300 ug/L	7 Days
Notes: VOA = volatile organic analysis HCL = hydrochloric acid						

7.7.4 Sampling and Analysis Plan for Other Pollutants Required by the Regional Water Quality Control Board

The RWQCB has not specified monitoring for additional pollutants.

7.7.5 Sample Collection and Handling

7.7.5.1 Sample Collection

Samples will be collected at the designated sampling locations shown on Figure 3 and listed in the preceding sections. To maintain sample integrity and prevent cross-contamination, sample collection personnel will follow the protocol below.

- Collect samples (for laboratory analysis) only in analytical laboratory-provided sample containers.
- Wear clean, powder-free nitrile gloves when collecting samples.
- Change gloves whenever something not known to be clean has been touched.
- Change gloves between sampling locations.
- Decontaminate all equipment (e.g. bucket, tubing) prior to sample collection using a phosphate-free detergent (e.g., Liquinox®) water wash, potable water rinse, and final rinse with distilled water. Decontamination water will be collected and properly disposed (i.e., not discharged to storm drain or receiving water). Laboratory-provided clean, sample bottles will not be decontaminated.
- Do not smoke during sampling events.
- Never sample near a running vehicle.
- Do not park vehicles in the immediate sample collection area (even non-running vehicles).
- Do not eat or drink during sample collection.
- Do not breathe, sneeze, or cough in the direction of an open sample container.

The most important aspect of grab sampling is to collect a water sample that represents the runoff stream at the time of sampling. Typically, samples are collected by dipping the collection container in the runoff flow paths and streams as noted below.

- For small streams and flow paths, simply dip the bottle facing upstream until full.
- For a larger stream that can be safely accessed, collect a sample in the middle of the flow stream by directly dipping the mouth of the bottle, once again making sure that the opening of the bottle is facing upstream to avoid any contamination by the sampler.
- For larger streams that cannot be safely entered, use a pole-sampler to safely access the middle of the flow stream to collect a representative sample.
- Avoid collecting samples from ponded, sluggish, or stagnant water.
- Avoid collecting samples directly downstream from a bridge, as the samples can be affected by the bridge structure or runoff from the road surface.

Note that, depending upon the specific analytical test, some containers may contain preservatives. These containers should **never** be dipped into the runoff stream, but filled indirectly from the container used to collect the water sample from the runoff stream.

7.7.5.2 Sample Handling

Samples for laboratory analysis must be handled as follows. Immediately following sample collection:

- Cap the sample container.
- Label the sample container.
- Seal the container in a re-sealable storage bag.
- Place storage bags with sample containers into an ice-chilled cooler.
- Document sample information on the Effluent Sampling Field Log Sheet.
- Complete the chain-of-custody (COC) documentation.

All samples for laboratory analysis must be maintained between 2 and 6 °C during delivery to the laboratory. Samples must be kept on ice, or refrigerated, from the time of sample collection through delivery to the laboratory. Place samples to be shipped inside coolers with ice. Make sure the sample bottles are well packaged to prevent breakage and secure cooler lids with packaging tape.

Samples for laboratory analysis will be shipped by overnight carrier or delivered to the analytical laboratory by a courier within 24 hours of sample collection. Hold times are measured from the time the sample is collected to the time the sample is analyzed. The analytical laboratory is identified below.

Laboratory Name: ARS International, LLC
Street Address: 2609 North River Road
City, State Zip: Port Allen, LA 70767
Telephone Number: (225) 381-2991
Point of Contact: Rodney Varnell

7.7.5.3 Sample Documentation Procedures

Information entries on sample bottle identification labels, the Effluent Sampling Field Log Sheet, and COC documentation will be completed using waterproof ink. These labels and documents will be considered accountable documents. If an error is made on an accountable document, the individual will make corrections by lining through the error and entering the correct information. The erroneous information will not be obliterated. All corrections will be initialed and dated.

Duplicate samples will be identified consistent with the numbering system for other samples to prevent the laboratory from identifying duplicate samples. Duplicate samples will be identified in the Effluent Sampling Field Log Sheet.

Sample documentation procedures include the following:

- Sample Bottle Identification Labels: Sampling personnel will attach an identification label to each sample bottle. The sample identification number will identify each sample collection location uniquely.
- Field Log Sheets: Sampling personnel will appropriately complete the Effluent Sampling Field Log Sheet and Receiving Water Sampling Field Log Sheet for each sampling event.

- Chain of Custody (COC): Sampling personnel will prepare a COC form for each sampling event for which samples are collected for laboratory analysis. Both the sampler and the receiving party will sign and date the COC when the samples are turned over to the testing laboratory or courier.

7.8 QUALITY ASSURANCE AND QUALITY CONTROL

An effective Quality Assurance and Quality Control (QA/QC) plan will be implemented to ensure that analytical data can be used with confidence. QA/QC procedures to be initiated include the following:

- Completion of field logs.
- Implementation of “clean” sampling techniques.
- Collection of QA/QC Samples.
- Data verification.

Each of these procedures is discussed in more detail in the following sections.

7.8.1 Field Logs

The purpose of field logs is to record sampling information and field observations during the collection of samples that may explain any uncharacteristic analytical results. Sampling information to be included in the field log includes the date and time of water quality sample collection, sampling personnel, sample container identification numbers, and the types of samples that were collected. Field observations should be noted in the field log, including any abnormalities at the sampling location (color, odor, BMPs, etc.). Field measurements for pH and turbidity also should be recorded in the field log. A Visual Inspection Field Log is included in Appendix D, Inspection Forms.

7.8.2 Clean Sampling Techniques

Clean sampling techniques involve the use of certified clean containers for sample collection and clean powder-free nitrile gloves during sample collection and handling. Adoption of a clean sampling approach will minimize the chance of field contamination and questionable data results.

7.8.3 Chain of Custody

The sample COC is an important documentation step that tracks samples from collection through analysis to ensure the validity of the sample. Sample COC procedures include the following:

- Proper labeling of samples.
- Completion of COC forms for all samples submitted for laboratory analysis.
- Prompt sample delivery to the analytical laboratory.

An example COC is included in the Sampling and Analysis Plan (Appendix B of the RAWP).

7.8.4 QA/QC Samples

QA/QC samples provide an indication of the accuracy and precision of the sample collection; sample handling; field measurements; and analytical laboratory methods.

The following types of QA/QC will be conducted for this project:

[FORMCHECKBOX] Field duplicates at a minimum frequency of one duplicate per sampling event.

(Required for all sampling plans with field measurements or laboratory analysis.)

[FORMCHECKBOX] Equipment blanks at a frequency of 5 percent.

(Only needed if equipment used to collect samples could add the pollutants to sample.)

[FORMCHECKBOX] Field blanks at a frequency of 5 percent.

(Only required if sampling method calls for field blanks.)

[FORMCHECKBOX] Travel blanks for each cooler containing samples for VOC or TPH-g analysis

(Required for sampling plans that include VOC or TPH-g laboratory analysis.)

7.8.4.1 Field Duplicates

Field duplicates provide verification of laboratory or field analysis and sample collection.

Duplicate samples will be collected, handled, and analyzed using the same protocols as primary samples. The sample location where field duplicates are collected will be randomly selected from the discharge locations. Duplicate samples will be collected immediately after the primary sample has been collected. Duplicate samples must be collected in the same manner and as close in time and location as possible to the original sample.

7.8.4.2 Equipment Blanks

Equipment blanks provide verification that equipment has not introduced a pollutant into the sample. Equipment blanks typically are collected when any of the following applies:

- New equipment is used.
- Equipment has been cleaned after use at a contaminated site.
- Equipment that is not dedicated for surface water sampling is used.
- A new lot of filters is used when sampling metals.

7.8.4.3 Field Blanks

Field blanks assess potential sample contamination levels that occur during field sampling activities. Deionized water field blanks are taken to the field, transferred to the appropriate container, and treated the same as the corresponding sample type during the course of a sampling event.

7.8.4.4 Travel Blanks

Travel blanks assess the potential for cross-contamination of VOCs between sample containers during shipment from the field to the laboratory. Travel blanks are prepared by the analytical laboratory using water free of VOCs and provided to the contractor. When samples are collected for analysis of VOCs, such as TPH-g, travel blanks are placed in the same cooler as the field samples for VOC analysis.

7.8.5 Data Verification

After results are received from the analytical laboratory, the Project Chemist will verify the data to ensure that it is complete, accurate, and the appropriate QA/QC requirements were met. Data must be verified as soon as the data reports are received.

Data verification will include:

- Check the COC and laboratory reports to verify that all requested analyses were performed and all sample analytical results are accounted for in the reports.
- Check laboratory reports to make sure hold times were met and that the reporting levels meet or are lower than the reporting levels agreed to in the contract.
- Check data for outlier values, and follow up with the laboratory if necessary.
Occasionally typographical errors, unit reporting errors, or incomplete results are reported and should be detected easily. These errors need to be identified, clarified, and corrected quickly by the laboratory.
- Check laboratory QA/QC results.
QA/QC checks will be performed based on acceptable criteria for laboratory analyses. The QA/QC data are reported along with the sample results. The Project Chemist will evaluate the reported QA/QC data to check for contamination (method, field, travel and/or equipment blanks), precision (laboratory matrix spike duplicates), and accuracy (matrix spikes and laboratory control samples). When QA/QC checks are outside acceptable ranges, the laboratory must flag the data, and provide an explanation of the potential impact to the sample results.
- Check the dataset for QA/QC outlier values, and request that the laboratory confirm results and re-analyze samples where appropriate.
Sample re-analysis should only be undertaken when it appears that some part of the QA/QC resulted in a value out of the accepted range. Sample results may not be discounted unless the analytical laboratory identifies the required QA/QC criteria were not met and confirms this in writing.

Field data, including inspections and observations, must be verified as soon as the field logs are received, typically at the end of the sampling event. Field data verification will include:

- Checking field logs to make sure all required measurements and observations were completed and appropriately documented.
- Checking reported values that appear out of the typical range or inconsistent with previous results, noting data that are an order of magnitude or more different than similar locations, or are inconsistent with previous data from the same location.
- Following up immediately to identify potential reporting or equipment problems and, if appropriate, recalibrating equipment after sampling.
- Verifying equipment calibrations.
- Reviewing observations noted on the field logs.
- Reviewing notations of any errors and corrective actions taken.

7.9 RECORDS RETENTION

All records of stormwater monitoring information and copies of reports must be retained for a period of at least 3 years from date of submittal or longer if required by the RWQCB.

Results of visual monitoring, field measurements and laboratory analyses must be kept in the CERCLA SWMP along with COCs, and other documentation related to the monitoring.

Records are to be kept on the Site while field activities are ongoing. Records to be retained include:

- The date, place, and time of inspections, sampling, visual observations, and/or measurements, including precipitation.
- The individual(s) who performed the inspections, sampling, visual observation, and/or field measurements.
- The date and approximate time of field measurements and sample collection for laboratory analyses.
- The individual(s) who collected the samples for laboratory analyses.
- A summary of all analytical results, the method detection limits and reporting limits, and the analytical techniques or methods used.
- QA/QC records and results.
- Field instrument calibration records.
- Visual observation and sample collection exemption records.
- The records of any corrective actions and follow-up activities that resulted from analytical results, visual observations, or inspections.

Section 8 References

California Stormwater Quality Association (CASQA), 2009. *Stormwater BMP Handbook Portal: Construction*. November. [[HYPERLINK "http://www.casqa.org"](http://www.casqa.org)].

Engineering/Remediation Resources Group, Inc. (ERRG) and Shaw Environmental, Inc., 2011. *Final Remedial Investigation/Feasibility Study Report for Parcel E-2*. May 5.

Gilbane Federal. (Gilbane), 20187a. *Internal DraftDraft Final Work Plan, Parcel C Buildings 253 and 211 Radiological Remediation, Hunters Point Naval Shipyard, San Francisco, California*. ~~October~~August.

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Gilbane, 20187b. *Internal DraftFinal Health and Safety Plan, Parcel C Buildings 253 and 211 Radiological Remediation, Hunters Point Naval Shipyard, San Francisco, California*. ~~October~~July.

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San Francisco Bay Regional Water Quality Control Board (RWQCB), 2011. "San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)." December 31.

State Water Resources Control Board (SWRCB), 2012. National Pollutant Discharges Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order 2012-0006-DWQ, NPDES No. CAS000002. Available on-line at: [[HYPERLINK "http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml"](http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml)].

TetraTech EC, Inc.(TtEC), 2017a. *Characterization Survey Results – Building 211, Hunters Point Naval Shipyard, San Francisco, California*. May.

TtEC, 2017b. *Characterization Survey Results – Building 253, Hunters Point Naval Shipyard, San Francisco, California*. May.

U.S. Environmental Protection Agency (EPA), 2012. "Stormwater Phase II Final Rule, Construction Rainfall Erosivity Waiver, EPA 833-F-00-014, Fact Sheet 3.1." March.

Figures

Appendix A: Construction Schedule

**Appendix B: Construction Activities, Materials Used,
and Associated Pollutants**

Table B.1 Construction Activities and Associated Pollutants

Phase	Activity	Pollutant Source	Pollutant Category
General Construction, Mobilization, and Site Preparation	Sanitary waste generation	<ul style="list-style-type: none">▪ Portable toilets	Nutrients and bacteria
	Vehicle and equipment mobilization	<ul style="list-style-type: none">▪ Equipment operation▪ Equipment maintenance▪ Equipment washing▪ Equipment fueling	Oil and grease, and synthetic organics
Trench excavations, screening of excavated soil, stockpiling, contaminated soil removal, removal of sanitary sewer and storm drain pipes, backfill	Vegetation removal or saw-cutting pavement, excavation, sampling, backfilling, and repair	<ul style="list-style-type: none">▪ Equipment operation▪ Equipment maintenance▪ Equipment washing▪ Equipment fueling▪ Soil spoils	COCs (metals, VOCs, PAHs, and PCBs in soil; VOCs, PAHs, SVOCs, and metals in groundwater); radiologically impacted soils; oil and grease, and synthetic organics.
Site Restoration and Demobilization	Waste transportation and disposal; vehicle and equipment demobilization	<ul style="list-style-type: none">▪ Equipment operation▪ Equipment maintenance▪ Equipment washing▪ Equipment fueling	COCs in sediment; COCs in soil; oil and grease, and synthetic organics

Appendix C: BMP Fact Sheets

Appendix D: Inspection Forms

BMP INSPECTION REPORT

Date and Time of Inspection:			Date Report Written:		
Inspection Type: (Circle one)	Weekly <i>Complete Parts I, II, III, and VII</i>	Pre-Storm <i>Complete Parts I, II, III, IV, and VII</i>	During Rain Event <i>Complete Parts I, II, III, V, and VII</i>	Post-Storm <i>Complete Parts I, II, III, VI, and VII</i>	
Part I. General Information					
Site Information					
Construction Site Name:					
Construction stage and completed activities:			Approximate area of site that is exposed:		
Photos Taken: (Circle one)	Yes	No	Photo Reference IDs:		
Weather					
Estimate storm beginning: (date and time)			Estimate storm duration: (hours)		
Estimate time since last storm: (days or hours)			Rain gauge reading (inches) and location:		
Is a "Qualifying Event" predicted or did one occur (i.e., 0.5" rain with 48-hrs or greater between events)? (Y/N) If yes, summarize forecast:					
Exemption Documentation (explanation required if inspection could not be conducted). Visual inspections are not required outside of business hours or during dangerous weather conditions such as flooding or electrical storms.					
Inspector Information					
Inspector Name:			Inspector Title:		
Signature:				Date:	

Part II. BMP Observations. Describe deficiencies in Part III.			
Minimum BMPs for Risk Level ____ Sites	Failures or other shortcomings (yes, no, N/A)	Action Required (yes/no)	Action Implemented (Date)
Good Housekeeping for Construction Materials			
Inventory of products (excluding materials designed to be outdoors)			
Stockpiled construction materials not actively in use are covered and bermed			
All chemicals are stored in watertight containers with appropriate secondary containment, or in a completely enclosed storage shed			
Construction materials are minimally exposed to precipitation			
BMPs preventing the off-site tracking of materials are implemented and properly effective			
Good Housekeeping for Waste Management			
Wash/rinse water and materials are prevented from being disposed into the storm drain system			
Portable toilets are contained to prevent discharges of waste			
Sanitation facilities are clean and with no apparent for leaks and spills			
Equipment is in place to cover waste disposal containers at the end of the business day and during rain events			
Discharges from waste disposal containers are prevented from discharging to the storm drain system / receiving water			
Stockpiled waste material is securely protected from wind and rain if not actively in use			
Procedures are in place for addressing hazardous and non-hazardous spills			
Appropriate spill response personnel are assigned and trained			
Equipment and materials for cleanup of spills are available on site			
Washout areas (e.g., concrete) are contained appropriately to prevent discharge or infiltration into the underlying soil			
Good Housekeeping for Vehicle Storage and Maintenance			
Measures are in place to prevent oil, grease, or fuel from leaking into the ground, storm drains, or surface waters			
All equipment or vehicles are fueled, maintained, and stored in a designated area with appropriate BMPs			
Vehicle and equipment leaks are cleaned immediately and disposed of properly			

Part II. BMP Observations (Continued). Describe deficiencies in Part III.			
Minimum BMPs for Risk Level ____ Sites	Adequately designed, implemented and effective (yes, no, N/A)	Action Required (yes/no)	Action Implemented (Date)
Good Housekeeping for Landscape Materials			
Stockpiled landscape materials such as mulches and topsoil are contained and covered when not actively in use			
Erodible landscape material has not been applied 2 days before a forecasted rain event or during an event			
Erodible landscape materials are applied at quantities and rates in accordance with manufacturer recommendations			
Bagged erodible landscape materials are stored on pallets and covered			
Good Housekeeping for Air Deposition of Site Materials			
Good housekeeping measures are implemented on site to control the air deposition of site materials and materials from site operations			
Non-Stormwater Management			
Non-Stormwater discharges are properly controlled			
Vehicles are washed in a manner to prevent non-stormwater discharges to surface waters or drainage systems			
Streets are cleaned in a manner to prevent unauthorized non-stormwater discharges to surface waters or drainage systems.			
Erosion Controls			
Wind erosion controls are effectively implemented			
Effective soil cover is provided for disturbed areas inactive (i.e., not scheduled to be disturbed for 14 days) as well as finished slopes, open space, utility backfill, and completed lots			
The use of plastic materials is limited in cases when a more sustainable, environmentally friendly alternative exists.			
Sediment Controls			
Perimeter controls are established and effective at controlling erosion and sediment discharges from the site			
Entrances and exits are stabilized to control erosion and sediment discharges from the site			
Sediment basins are properly maintained			
Linear sediment control along toe of slope, face of slope, and at grade breaks (Risk Level 2 & 3 Only)			
Construction traffic to and from site limited to entrances and exits with effective controls to prevent off-site tracking (Risk Level 2 & 3 Only)			

All storm drain inlets and perimeter controls, runoff control BMPs, and pollutant controls at entrances and exits are maintained and protected from activities that reduce their effectiveness (Risk Level 2 & 3 Only)			
All immediate access roads inspected daily (Risk Level 2 & 3 Only)			
Run-On and Run-Off Controls			
Run-on to the site is effectively managed and directed away from all disturbed areas.			
Other			
Are the project CERCLA SWP and BMP plan up to date, available on site, and being properly implemented?			

Part III. Descriptions of BMP Deficiencies		
Deficiency	Repairs Implemented: Note - Repairs must begin within 72 hours of identification, and be completed as soon as possible.	
	Start Date	Action
1.		
2.		
3.		
4.		

Part IV. Additional Pre-Storm Observations. Note the presence or absence of floating and suspended materials, sheen, discoloration, turbidity, odors, and source(s) of pollutants(s).	
	Yes, No, N/A
Do stormwater storage and containment areas have adequate freeboard? If no, complete Part III.	
Are drainage areas free of spills, leaks, or uncontrolled pollutant sources? If no, complete Part VII and describe below.	
Notes:	
Are stormwater storage and containment areas free of leaks? If no, complete Parts III and/or VII and describe below.	

Notes:	

Part V. Additional During-Storm Observations. If BMPs cannot be inspected during inclement weather, list the results of visual inspections at all relevant outfalls, discharge points, and downstream locations. Note odors or visible sheen on the surface of discharges. Complete Part VII (Corrective Actions) as needed.	
Outfall, Discharge Point, or Other Downstream Location	
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description
Location	Description

Part VI. Additional Post-Storm Observations. Visually observe (inspect) stormwater discharges at all discharge locations within two business days (48 hours) after each qualifying rain event, and observe (inspect) the discharge of stored or contained stormwater that is derived from and discharged subsequent to a qualifying rain event producing precipitation of ½ inch or more at the time of discharge. Complete Part VII (Corrective Actions) as needed.	
Discharge Location, Storage or Containment Area	Visual Observation

Part VII. Additional Corrective Actions Required. Identify additional corrective actions not included with BMP Deficiencies (Part III) above. Note if CERCLA SWP change is required.	
Required Actions	Implementation Date

Risk Level 1, 2, 3 Visual Inspection Field Log Sheet						
Date and Time of Inspection:				Report Date:		
Inspection Type:	<input type="checkbox"/> Weekly	<input type="checkbox"/> Before predicted rain	<input type="checkbox"/> During rain event	<input type="checkbox"/> Following qualifying rain event	<input type="checkbox"/> Contained stormwater release	<input type="checkbox"/> Quarterly non-stormwater
Site Information						
Construction Site Name:						
Construction stage and completed activities:				Approximate area of exposed site:		
Weather and Observations						
Date Rain Predicted to Occur:				Predicted % chance of rain:		
Estimate storm beginning: _____ (date and time)	Estimate storm duration: _____ (hours)		Estimate time since last storm: _____ (days or hours)	Rain gauge reading: _ _____ (inches)		
Observations: If yes identify location						
Odors	Yes <input type="checkbox"/> No <input type="checkbox"/>					
Floating material	Yes <input type="checkbox"/> No <input type="checkbox"/>					
Suspended Material	Yes <input type="checkbox"/> No <input type="checkbox"/>					
Sheen	Yes <input type="checkbox"/> No <input type="checkbox"/>					
Discolorations	Yes <input type="checkbox"/> No <input type="checkbox"/>					
Turbidity	Yes <input type="checkbox"/> No <input type="checkbox"/>					
Site Inspections						
Outfalls or BMPs Evaluated			Deficiencies Noted			
(add additional sheets or attach detailed BMP Inspection Checklists)						
Photos Taken:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Photo Reference IDs:			
Corrective Actions Identified (note if CERCLA SWP/REAP change is needed)						
Inspector Information						
Inspector Name:				Inspector Title:		

NAL or NEL Exceedance Evaluation Summary Report		Page ____ of ____
Project Name		
Project WDID		
Project Location		
Date of Exceedance		
Type of Exceedance	NAL Daily Average <input type="checkbox"/> pH <input type="checkbox"/> Turbidity NEL Daily Average <input type="checkbox"/> pH <input type="checkbox"/> Turbidity <input type="checkbox"/> Other (specify) .	
Measurement or Analytical Method	<input type="checkbox"/> Field meter (Sensitivity: _____) <input type="checkbox"/> Lab method (specify) ____ (Reporting Limit: _____) (MDL: _____)	
Calculated Daily Average	<input type="checkbox"/> pH _____ pH units <input type="checkbox"/> Turbidity _____ NTU	
Rain Gauge Measurement	_____ inches	
Compliance Storm Event	_____ inches (5-year, 24-hour event)	
Visual Observations on Day of Exceedance		

NAL or NEL Exceedance Evaluation Summary Report		Page ____ of ____
Description of BMPs in Place at Time of Event		
Initial Assessment of Cause		
Corrective Actions Taken (deployed after exceedance)		
Additional Corrective Actions Proposed		
Report Completed By	<div></div> <div>(Print Name, Title)</div>	
Signature	<div></div>	

Appendix E: Training Reporting Form

TO BE FILLED OUT DURING CONSTRUCTION

Trained Contractor Personnel Log

Stormwater Management Training Log and Documentation

Project Name: Radiological Remediation and Support, HPNS

WDID #: _____

Stormwater Management Topic: (check as appropriate)

[FORMCHECKBOX] Erosion Control

[FORMCHECKBOX] Sediment

[FORMCHECKBOX] Wind Erosion Control

[FORMCHECKBOX] Tracking

[FORMCHECKBOX] Non-Stormwater Management

[FORMCHECKBOX] Waste

Management and Materials Pollution Control

[FORMCHECKBOX] Stormwater Sampling

Specific Training Objective: _____

Location: _____

Date: _____

Instructor: _____

Telephone: _____

Course Length (hours): _____

Attendee Roster (Attach additional forms if necessary)

Name	Company	Phone

As needed, add proof of external training (e.g., course completion certificates, credentials for QSP, QSD).

Appendix F: Monitoring Record

TO BE FILLED OUT DURING CONSTRUCTION